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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/663,559	09/15/2003	David Darden Chambliss	SJO920030006US1	3819

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EXAMINER	
GOODCHILD, WILLIAM J	

ART UNIT	PAPER NUMBER
2145	

MAIL DATE	DELIVERY MODE
10/15/2007	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/663,559	CHAMBLISS ET AL.	
	Examiner	Art Unit	
	William J. Goodchild	2145	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *10 August 2007*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-15,17-28 and 30-49* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-15,17-28 and 30-49* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *10 August 2007* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

2. Claims 1, 3-5, 8-12, 17-19, 21-23, 25-28, 30-31, 33-35, 38-42 and 46-49 are rejected under 35 U.S.C. 102(e) as being anticipated by Guha, (US Publication No. 2002/0194324).

In reference to claims 1, 19, 31 and 47, Guha teaches a method / system comprising: a processing unit [paragraph 38, computer contains a processor]; providing an application service connection definition for each of the I/O paths from a host to a storage volume [paragraphs 49 and 57, SLA is created with a definition of a metric to monitor and providing performance criteria to monitor]; providing at least one service level guarantee definition indicating performance criteria to satisfy service requirements included in at least one service level agreement with at least one customer for network resources [paragraphs 49 and 57, SLA is created with a definition of a metric to monitor and providing performance criteria to monitor]; associating each service level guarantee definition with at least one application service connection definition [paragraphs 49 and

57, SLA is created with a definition of a metric to monitor and providing performance criteria to monitor]; gathering, by a virtualization controller mapping physical storage resources to virtual volumes in a virtualization layer, I/O performance data for I/O requests transmitted through the I/O paths [paragraph 45, lines 10-15 and paragraph 60 and 62]; transmitting, by the virtualization controller, the gathered performance data to a service level agreement server [paragraphs 60 and 69]; monitoring, by the service level agreement server, whether the performance data for the I/O requests transmitted through the I/O paths satisfy the performance criteria indicated in the service level guarantee definition associated with the application service connection definitions for the I/O path [paragraph 44]; transmitting, by the service level agreement server, commands to the virtualization controller to throttle I/O transmission over at least one connection in response to determining that the performance data for at least one connection does not satisfy the performance criteria [paragraph 69].

In reference to claims 3, 21, 33 and 48, Guha teaches the method / system of claims 1, 19, 31 and 47 wherein: multiple service level guarantee definitions indicating different performance criteria are associated with different sets of application service connection definitions [paragraph 49].

In reference to claims 4, 22 and 34, Guha teaches the method / system of claims 3, 21 and 33 wherein: the application service definition for the I/O paths may be associated with the multiple service level guarantee definitions [paragraph 49], wherein the

monitoring comprises determining whether the I/0 requests transmitted through the I/O paths satisfy the performance criteria of all associated service level guarantee definitions [paragraph 49].

In reference to claims 5, 23, 35 and 49, Guha teaches the method / system of claims 1, 19, 31 and 47 wherein: providing an application service group identifying a plurality of application service connection definitions, wherein associating the at least one service level guarantee definition with the application service connection definitions comprises associating the at least one service level guarantee definition with the at least one application service group [paragraph 14], wherein the application service connection definitions identified in the application service group are associated with the service level guarantee definition with which their application service group is associated [paragraph 14].

In reference to claims 8, 25 and 38, Guha teaches the method / system of claims 1, 19 and 31 wherein: monitoring whether the I/O requests transmitted through the I/O path satisfy performance criteria indicated in the service level guarantee definition [paragraph 44] comprises: gathering performance information concerning I/O requests for the I/O paths [paragraph 45, lines 10-15 and paragraph 60 and 62]; selecting one of the at least one service level guarantee definition [paragraphs 45, 60 and 62]; and for each of the I/O paths identified by the application service connection definition associated with the selected service level guarantee definition, comparing the gathered performance

information for the I/O path with the performance criteria indicated in the selected service level guarantee definition [paragraphs 45, 60 and 62].

In reference to claims 9, 26 and 39, Guha teaches the method / system of claims 8, 25 and 38 wherein: adjusting operations among the I/O paths represented by the application service connection definitions associated with the selected service level guarantee definition if the gathered performance information for the I/O paths does not satisfy the performance criteria [paragraphs 45 and 49].

In reference to claims 10, 27 and 40, Guha teaches the method / system of claims 9, 26 and 39 wherein: adjusting the operations comprises: determining the I/O paths that are over performing and under performing with respect to the performance criteria [paragraph 44]; and throttling the transmission of the I/O requests through the determined I/O paths that are over performing paragraph 62].

In reference to claims 11 and 41, Guha teaches the method / system of claims 10 and 40 wherein: throttling the transmissions comprises delaying the processing of the I/O requests transmitted through the over performing I/0 paths [paragraph 69].

In reference to claims 12, 28 and 42, Guha teaches the method / system of claims 8, 25 and 38 wherein: the gathering of the performance information for the I/O paths comprises determining an I/O response time and I/O demand at the I/O paths and

comparing the determined I/O response time and the I/O demand with the performance criteria for the I/O response time and the I/O demand in the selected service level guarantee definition [paragraph 69].

In reference to claim 17, Guha teaches the method / system of claim 1 wherein: the network comprises a Storage Area Network (SAN) [paragraph 40].

In reference to claims 18, 30 and 46, Guha teaches the method / system of claims 1, 19 and 31 wherein: the at least one application service connection definition, the at least one service level agreement, and the at least one service level guarantee definition, are provided by the service level agreement server in a web service architecture that interfaces with a client to provide real time performance information on the I/O paths to the client [paragraph 39].

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

4. Claims 2, 7, 20, 24, 32 and 36 are rejected under 35 U.S.C. 103(a) as being unpatentable over Guha, (US Publication No. 2002/0194324) as applied to claims 1, 5,

19, 23, 31 and 35 above, and further in view of Bradley et al., (hereinafter Bradley), (US Patent No. 7,082,463).

Regarding claims 2, 20 and 32, Guha explicitly teaches the limitations as disclosed above except for the limitations of: each service level guarantee definition is implemented as a separate element in at least one Extended Markup Language (XML) document, the element for the service level guarantee definition includes the performance criteria defined in the service level agreement, and wherein the application service connection definition for each of the I/O paths is implemented as an element the at least one XML document, wherein attributes of the application service connection definition element provide information on the I/O path. However, Bradley, discloses metric elements [Bradley, column 12, Table 4, column 9, line 29, 'Standardized Interface Templates' paragraph and column 7, lines 5-7] of an SLA using XML [Bradley, column 13, Table 5 and column 12, Table 4, metric]. It would have been obvious to one having ordinary skill in the art at the time the invention was made to incorporate using metric elements of an SLA within XML format in order to allow for greater flexibility while creating and using SLA's.

Regarding claims 7, 24 and 36, Guha-Bradley further discloses including one element for each service group in an XML document [Bradley, column 12, Table 4, a metric], including one sub-element for each application service group [Bradley, column 12,

Table 4], each sub-element including attributes [Bradley, column 13-23, see each table defining elements and sub-elements].

5. Claim 37 is rejected under 35 U.S.C. 103(a) as being unpatentable over Guha, (US Publication No. 2002/0194324) and Bradley et al., (hereinafter Bradley), (US Patent No. 7,082,463) as applied to claim 36 above, and further in view of Koclanes et al., (hereinafter Koclanes), (US Publication No. 2004/0243699).

Regarding claim 37, Guha-Bradley explicitly teaches the limitations as disclosed above except for the limitations of: providing a service level commitment record associating one service level agreement definition with the at least one application service group. However, Koclanes, discloses creating an SLA [Koclanes, paragraph 37, lines 1-5]. It would have been obvious to one having ordinary skill in the art at the time the invention was made to create an SLA in order to monitor the I/O of a system and provide service guarantee's.

6. Claim 6 is rejected under 35 U.S.C. 103(a) as being unpatentable over Guha, (US Publication No. 2002/0194324) as applied to claim 5 above, and further in view of Koclanes et al., (hereinafter Koclanes), (US Publication No. 2004/0243699).

Regarding claim 6, Guha explicitly teaches the limitations as disclosed above except for the limitations of: providing a service level commitment record associating one service level agreement definition with the at least one application service group. However,

Koclanes, discloses creating an SLA [Koclanes, paragraph 37, lines 1-5]. It would have been obvious to one having ordinary skill in the art at the time the invention was made to create an SLA in order to monitor the I/O of a system and provide service guarantee's.

7. Claims 13-15 and 43-45 are rejected under 35 U.S.C. 103(a) as being unpatentable over Guha, (US Publication No. 2002/0194324) as applied to claims 12 and 42 above, and further in view of Carlson et al., (hereinafter Carlson), (US Publication No. 2003/0135609).

Regarding claims 13 and 43, Guha explicitly teaches the limitations as disclosed above except for the limitations of: the I/O demand comprises I/O operations per second per unit of contracted storage capacity and I/O throughput per contracted storage capacity. However, Carlson, discloses service level parameters that are monitored are members of a set of service level parameters that may include: a throughput in terms of bytes per second transferred between the at least one host and the storage; and an I/O transaction rate [Carlson, paragraph 19]. It would have been obvious to one having ordinary skill in the art at the time the invention was made to include the load calculations within the SLA for monitoring in order to monitor the requirements of the SLA metrics.

Regarding claims 14 and 44, Guha-Carlson further discloses one of the I/O paths is under performing if a percentage of I/O response times measured for I/O path is less

than a percentage guarantee indicated in the selected service level guarantee definition [Carlson, paragraph 126].

Regarding claims 15 and 45, Guha-Carlson further discloses one of the I/O paths is under performing if the I/O demand exceeds a demand criteria indicated in the service level guarantee definition and a sampling of the determined I/O response time is less than a response time criteria indicated in the service level guarantee definition [Carlson, paragraph 126].

Response to Arguments

8. Applicant's arguments with respect to claims 1-15, 17-28, 30-49 have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

9. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

10. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the

shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to William J. Goodchild whose telephone number is (571) 270-1589. The examiner can normally be reached on Monday - Friday / 9:00 AM - 5:00 PM EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jason Cardone can be reached on (571) 272-3933. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

JASON CARDONE
SUPERVISORY PATENT EXAMINER

WJG
10/01/2007